

# PILING

## WOLMANIZED®



The use of wood piling dates back nearly 6000 years when Neolithic tribes first used logs for structural support on soft soil. Since, builders have used piling to support structures and roads and to keep water out or in. Today, wood piling is just as vital and viable as it always has been.

*Why use Wolmanized® Heavy Duty™ CCA treated wood piling?*

Wood, nature's renewable resource, is a proven, economical building material that is long-lasting as well as strong, durable and

resilient. Piling is treated using a pressure process that forces chemical into the wood, penetrating deeply. It is protected against termites, beetles, carpenter ants, bees, decay, and marine organisms.



## Benefits of Wood Piling

- Long lasting
  - o Fully embedded, treated, concrete capped foundation piles partially above the groundwater will last 100 years or longer, according to the Federal Highway Administration
- Strong
  - o Field load tested to 75 tons. All tests were taken to two times or more the design load, which is a safety factor of two
- Flexible
  - o Testing showed bending stresses could be 36-53% higher than those currently allowed for bending design
- Installation
  - o Installs with standard, readily available equipment
  - o Hydraulic equipment that mediates noise and vibration can only be used on wood piling; wood is less noisy than steel piling when driven
- Economical
  - o Has lowest cost per ton of load carrying capacity of any deep foundation material
- Life Cycle Assessment
  - o An independent life cycle assessment confirmed that CCA piling uses less energy and resources, offsets fossil fuel use, and has a reduced environmental impact when compared to concrete, steel and fiber-reinforced composite piling
- Additional
  - o Resists attack from both alkaline and acidic soil; corrosion protection is not required
  - o Unaffected by electrolysis from stray electrical currents
  - o Leach resistant, non-oily, and no fumes

## Design Values

Piling design values for normal load duration and wet conditions of use. In pounds per square inch.<sup>1</sup>

Property	Southern Pine <sup>2</sup>	Douglas fir <sup>3</sup>
Compression Parallel to Grain, $F_c$	1,200	1,250
Extreme Fiber in Bending, $F_b$	2,400	2,450
Horizontal Shear, $F_v$	110	115
Compression Perpendicular to Grain, $F_{c\perp}$	250	230
Modulus of Elasticity, $E$	1,500,000	1,500,000

Source: Values are from ANSI/AF&PA NDS-2005, National Design Specification for Wood Construction, Supplement for Timber Poles and Piles.

<sup>1</sup> A form factor for bending members of circular cross section is incorporated in the allowable unit stresses for extreme fiber in bending listed in the table, for pile clusters.

<sup>2</sup> Southern pine values apply to longleaf, slash, loblolly and shortleaf pine.

<sup>3</sup> Douglas fir values apply to Pacific Coast Douglas fir.

## Treatment Requirements for Wolmanized® CCA Southern Pine Piling

### AWPA Use Category

#### AWPA T1-13 Section E • AWPA T1-13 Section G Marine

AWPA Reference	Type	Penetration	Assay Zone(s)	Retention PCF
UC4C	Foundation	2.5" or 85%	0.0-2.0"	0.80
UC4C	Land & Freshwater	3.0" or 90%	0.0-3.0"	0.80
UC5A	Marine - Long Island, NY, & North	3.5" or 90%	0.0-0.5" 0.5-2.0"	1.5 0.9
UC5B & UC5C	Marine - Long Island, NY, & South	3.5" or 90%	0.0-0.5" 0.5-2.0"	2.5 1.5
UC5B & UC5C	Dual treatment CCA	3.5" or 90%	0.0-1.0"	1.0
UC5B & UC5C	Dual Treatment Creo	3.5" or 90%	0.0-1.0"	20

## HURRICANE STRONG



*This house, built on CCA piles in Pearlington, MS, is reported to be the only house that survived flooding from Hurricane Katrina. Water came within several inches of the pile girders, but never entered the house.*

*Similarly constructed beach houses meeting coastal wind load standards line the coast from New Jersey to Mississippi.*



*This house on CCA wood piles survived Hurricane Ike at Galveston, TX.*



*Homes built on wood piles survived a 2009 Atlantic hurricane at Nags Head, NC.*